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ABSTRACT

Applied performance tests are instruments designed to measure performance in an actual or simulated setting. The identifying difference between applied performance and other tests is the degree to which the instrument approximates the reality of the situation in which the task must be performed. A Clearinghouse for Applied Performance Testing (CAPT) was proposed and undertaken in 1974 by a consortium of four states--Hawaii, Oregon, Pennsylvania and Washington--in cooperation with the Northwest Regional Educational Laboratory. Initially, CAPT emphasized the collection and dissemination of materials concerned with subject matter areas included in a traditional public school setting at grade levels K-12, but since the bulk of the research had been undertaken in business, the military, vocational/occupational training, professional education and adult education, collective efforts have been expanded to facilitate finding materials adaptable for public school use. The procedures used in collecting information, and also other sources for materials on applied performance testing, are discussed. (BW)

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The State of the Art in Applied Performance Testing

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INTRODUCTION

I would like to preface my remarks this morning with a brief discussion of the measurement technique we refer to as applied performance testing, and also to the Clearinghouse for Applied Performance Testing, commonly called CAPT. The main focus of my presentation will be on the procedures we have used in obtaining applied performance tests and testing materials, as well as the results of the first year of our efforts. The intent of this discussion is to highlight currently available materials and major centers of activity in the field of applied performance testing, to provide updated information on the current status of the field, and to outline some future research and development directions for the area of applied performance testing.

Definition of Applied Performance Testing

Applied Performance Tests are instruments designed to measure performance in an actual or simulated setting. In education, performance tests focus on the measurement of performance on tasks significant to a student's life outside the school or to adult life. In vocational and military training programs, applied performance tests measure the skills or competencies a trainee must acquire for effective job performance.

Applied performance tests in education are applied in the sense that the instruments are designed to assess whether examinees can perform tasks requiring the application of classroom learning. An applied performance test measures the end point, or terminal objective, in instruction. For example, high school mathematics students who are taught computations involving percentages may be given a test which covers the material in much the same way it was taught. On the other hand, an applied performance test covering percentage could be used to assess a student's ability in computing interest on a loan-application of a skill in a practical situation. Renewed interest in applied performance testing stems from the desire of many educators (and lay persons) to direct classroom measurement toward the practical outcomes of

classroom learning. Some suggest that applied performance assessment could direct curriculum development to close the gaps between classroom learning and survival skills required for quality life in a complex society.

In training settings, the distance between classroom instruction and on-the-job task requirements is greatly reduced, if not eliminated by the use of applied performance tests. Instruments developed by the Human Resources Research Organization (HumRRO) are designed to measure pre-specified objectives of a training program, yet are independent of instructional strategies employed in training. This procedure ensures measurements of proposed training outcomes, while reducing the possibility of teaching for the test. The degree of outcome specification is one main difference between training and education (training situations have specific outcomes that direct the content of instruction and measurement).

The identifying difference between applied performance and other types of tests is the degree to which the instrument approximates the reality of the situation in which the task must be performed. Applied performance tests are designed to incorporate a high degree of realism into the test situation. (Realism, fidelity and authenticity are used interchangeably in describing the degree to which these tests mimic real life situations that require this task performance.). Because authenticity to real life encounters is relative, it is sometimes difficult--perhaps impossible--to clearly distinguish between those tests that are applied performance and those that are not. There is therefore a gray area in which categorization of applied performance tests becomes very difficult.

Item stimulus and response can act as focal points for applied performance test designation and it is possible to separate most instruments on the basis of authentic reproduction of real life situations. The stimulus and response can both have either high or low fidelity. If either or both have high authenticity, the instrument may be labeled an applied performance test. Figure 1 depicts the categories of instrument that fall into this definition of applied performance testing.

An example of high stimulus authenticity/low response authenticity would be an elaborate simulation (jet simulation trainer) that requires a multiple choice response to the stimulus situation. An example of a high stimulus authenticity/high response authenticity would be a real life situation (the ability to plan and cook a nutritionally complete dinner) that calls for the correct execution of the appropriate response (cooking the meal). An example of a low stimulus authenticity/high response authenticity would be a media simulation (police training film) that calls for real life skills (trainee makes and carries out a shoot/no shoot decision, where accuracy is assessed in the former case).

		Response Authenticity		
		Low	High	
Stimulus Authenticity	Low		X	
	High	X	X	

X = Applied Performance Task

Figure 1. Definition of Applied Performance Tests

The judging of high or low authenticity is subjective, but this matrix offers an interesting way of viewing the salient points of applied performance testing. Both descriptors, applied and performance, imply the difference between this testing technique and others. The proximity to realism in the testing situation is the distinguishing feature of applied performance testing.

CAPT Description

The Clearinghouse for Applied Performance Testing was cooperatively conceived, proposed and undertaken by a consortium of four states—Hawaii, Oregon, Pennsylvania and Washington. These member states have worked together with the Northwest Regional Educational Laboratory, to establish a mechanism for rapid access to applied performance testing materials, to disseminate information about such materials and to begin filling gaps in the availability and use of applied performance testing materials and procedures.

The initial emphasis in the collection and dissemination of applied performance testing materials was initially directed toward subject matter areas included in traditional public school setting at grade levels K-12. However, the results of early CAPT collection efforts clearly indicated that the bulk of the work in the field of applied performance testing had occurred beyond the scope of public school subject matter areas and grade levels. Extensive work had been undertaken in business, the military, vocational/occupational training and non-public school educational fields such as professional education (health fields, teacher-training, etc.) and adult education. Because of these findings collection efforts have been expanded to facilitate finding materials adaptable for public school use.

Allow me to digress for a moment to discuss the procedures involved in acquiring materials now available from CAPT. I will then return to a discussion of the results of collection activities over the past year.

PROCEDURES

July-September 1974

The CAPT Policy Board, consisting of one representative from each of the four member states, adopted a general policy directing collection efforts to be carried out by the CAPT staff. This policy dictated that collection activities would be launched through a variety of strategies. Overlap in collection endeavors would indicate full coverage of the field while new discoveries would indicate that different search methods could produce additional applied performance materials.

It is important to note that many collection activities were undertaken for reasons other than the collection of applied performance testing materials. For example, the first collection strategy was conducted to publicly announce the establishment of CAPT and to solicit information about persons and projects in the field. A publicity release was sent to national education journals and regional and state informational publications. Among those journals used to solicit information were:

Education Daily
Educational Researcher
Educational Leadership
Measurement News
Phi Delta Kappan
APA Monitor

Journal of Educational Research
Behavior Today
Educational Testing Service Recaps
Interstate Project Reporter
The Oregon Pipeline
Educational Technology

During the initial collection phase of the CAPT project, CAPT staff searched literature for tests or informational papers on applied performance testing. Because the field of applied performance testing was rather young (at least in terms of renewed interest in education), research efforts focused mainly on publications and projects from the last five years. Military sources of information, however, required more extensive research, since performance testing had been employed by the Military since World War II.

Searches of computer information bases were conducted to reveal additional sources of information. Information bases searched included:

Educational Resources Information Center (ERIC)
Research and Information Services for Education (RISE)
Vocational Education Information Network (VEIN)
National Technical Information Service (NTIS)
Psychological Abstracts

Results of the computer searches varied widely—even within the same system—depending on the search strategy and descriptions used. This variability stemmed from the fact that descriptors used within systems did not correspond to current notions of performance. This proved a complex

problem; not only did descriptors fail to match our definitions (thereby making access difficult), but descriptors assigned during entry of the documents into the system were couched in a dated vocabulary.

October-December 1974

As CAPT staff conducted field surveys and literature searches, Brigham Young University (BYU) undertook a search for additional sources of information about work in the field. The BYU staff completed a literature survey as well as a field survey of applied performance testing activity. The literature survey netted 350 annotated references. Many of these references duplicated present CAPT materials; however, there were enough new references to convince CAPT staff that the external search activity had indeed been beneficial to the project.

The field survey employed a questionnaire sent to 600 individuals throughout the country. In this survey special emphasis was placed on determining the need for and availability of instructional materials for applied performance assessment. Unfortunately, the return rate of this questionnaire was quite low--perhaps because the questionnaire was sent just prior to Christmas, 1974. A follow-up study retrieved additional data.

By the winter of 1974, many projects had been identified in the field, and the Policy Board noted approximately 30 as major centers of activity. In an effort to collect current information about new developments in the field, the CAPT Policy Board and staff visited these projects. CAPT staff developed an interview format for collecting required data. Because of variations among these centers, the interview schedule was modified to fit each situation. CAPT staff were primarily interested in obtaining data on (a) an overview of the project, (b) use of applied performance testing, (c) available measures or procedural papers on applied performance testing, and (d) knowledge about other projects using applied performance testing. These site visits proved quite beneficial. Although some projects were not as deeply involved in testing as originally believed, most had materials and references that were of great utility to CAPT and CAPT users. The following centers of activity were visited by CAPT representatives.

Visitation Sites in Washington, D.C.

- o Superintendent of Documents
Government Printing Office
- o Federal Aviation Administration
- o Human Resources Research Organization (HumRRO)

- o Office of Research
National Institute of Education
U.S. Department of Health, Education and Welfare
- o Test Services Center
Personnel Research & Development Center
U. S. Civil Service Commission
- o President's Council on Physical Fitness
- o U. S. Department of the Treasury
Internal Revenue Service (Training Division)
Consolidated Federal Law Enforcement Training Center

Visitation Sites in Chicago, Illinois

- o Chicago Urban Skills Institute
- o Center for Educational Development at the
University of Illinois Medical Center

**Visitation Sites at the Educational Testing Service (ETS) in
Princeton, New Jersey**

- o Cooperative Assessment of Experiential Learning (CAEL)
- o National Occupational Competency Testing Institute
- o ERIC Clearinghouse on Tests, Measurement and Evaluation
- o ETS Test Collection

Visitation Sites at Other Locations

- o Southern Association of Schools and Colleges at Atlanta, Georgia
- o U. S. Army Combat Arms Training Board at Fort Benning, Georgia
- o Measurement Information Exchange (Project MIX) at Boulder,
Colorado
- o Cooperative Accountability Project, Colorado State Department
of Education at Denver, Colorado
- o National Assessment of Educational Progress (NAEP) at Denver,
Colorado
- o United Airlines Flight Training Center at Denver, Colorado

- o Adult Performance Level Study, The University of Texas at Austin, Texas
- o Research and Development Center for Vocational Education at Columbus, Ohio

January-March 1975

Ongoing activities, such as solicitations and literature searches, continued to expand CAPT holdings. Publication of the CAPT Newsletter continued on a bi-monthly basis to provide information on CAPT activities and on the status of the field. The January issue of the CAPT Newsletter contained a list of "References Related to Applied Performance Assessment," subdivided into three sections according to accessibility of the materials. One section listed documents available from ERIC Microfiche collections. Another provided references to materials collected by and available from CAPT. An order form was attached for users' convenience in obtaining materials from CAPT. This list was generated before all collection activities had ceased, in order that applied performance tests and testing materials might be disseminated to educators before the school year had ended. Teachers could then begin using applied performance tests in planning their assessment activities.

On March 30, 1975, a National Conference on the Future of Applied Performance Testing was held in Washington, D. C., in conjunction with the AERA/NCME annual meetings. This conference, co-sponsored by NCME and CAPT, served to further educate interested persons in the use of this valuable assessment technique. Proceedings of this conference have been made available to those unable to participate. Conference participants were provided an opportunity to add input during small group discussion sessions, and to gain, through working sessions, a sense of direction for future research in the field. The National Conference, originally intended as a dissemination activity, was quite useful as an information collection device because applicants and participants at the conference were generous in providing information about projects and products not previously encountered by CAPT.

July-September 1975

An updated version of the document "References Related to Applied Performance Testing" was enclosed with the July issue of the CAPT Newsletter. The updated reference list was divided by sections indicating the availability of the materials (similar to the January version) and materials available from CAPT were categorized by subject matter for ordering ease. This document included many materials collected from January to July and provided detailed ordering information.

The September 1975 issue of the CAPT Newsletter contains a 64-page Annotated Bibliography on Applied Performance Testing. This document

contains summaries of all documents available from CAPT, arranged by subject matter categories as in the Related References document. The latter two documents represent the culmination of CAPT collection efforts in the field of applied performance testing to the present.

RESULTS

Content Area Emphases

The myriad of collection activities described above portray the state of the art in applied performance testing. As one might expect, applied performance testing is well developed in subject matter areas where the product of instruction requires the same performance. Occupational fields such as carpentry, mechanics, clerical education and masonry rely on both performance tests and complementary paper and pencil tests to certify occupational competency. Professional occupations--especially the medical arts and teaching--have been very active in using performance training and testing. The Military and private industry have also used performance testing extensively.

Simulation is a well-developed facet of applied performance testing. Business and the medical arts are proficient users of simulation and gaming techniques. Simulation has some distinct advantages over actual performance testing, including reduced cost, increased sampling of behavior, reduced consequences due to error, and the possibility for variation while maintaining standardization.

Traditional public school content areas often lack applied performance testing devices. Increased interest and development in basic skills assessment, however, will soon change this; a growing concern to assess school subject matter in terms of life skills will require additional measures of an applied performance nature. But even now the Clearinghouse for Applied Performance Testing is capable of providing technical instruments for measurement of public school content areas. By assisting in the development and dissemination of new measures, CAPT is not only promoting the use of applied performance testing, but also helping to meet the growing need for validated applied performance instruments.

In searching for applied performance tests in public school content areas, substantial variance was found in the number of instruments available by content area. Applied performance tests were found for reading and mathematics at the junior high and high school levels. Although test items in reading and math were encountered for the elementary levels, most were traditional paper and pencil items rather than problem-solving or application exercises measuring mathematical competencies. Similar findings were made in psychomotor skills assessment. Applied performance tests were available for junior high and high school, but little was found for K-6 grade levels.

A number of subject matter areas were void of applied performance tests. Social sciences (including history, civics, psychology, philosophy and economics), physical sciences (including geology, geography,

biology and physics) and foreign languages are content areas for which no tests of an applied performance nature were found by CAPT search activities. Certainly the latter two content areas, physical sciences and foreign languages, place heavy emphasis on performance. Therefore, applied performance test development should be expected in these content areas. The Arts (including drama, literature, and art and music forms) is another area where applied performance test development has not met its potential.

The fact that applied performance tests are not available in these public school content areas does not imply that performance measurement of student progress does not occur. Rather, performance measurement that does occur usually takes place in an informal non-standardized testing situation in which neither the examinee nor examiner are certain of the criteria (or the weightings of those criteria) upon which the performance is evaluated. One of the goals of the CAPT Project is to reduce the number of informal performance tests by highlighting positive aspects of standardized applied performance tests and by providing evaluative criteria upon which applied performance tests may be judged.

CAPT: A Resource

The CAPT Newsletter has been the vehicle by which CAPT has endeavored to extol the virtues of standardization in applied performance testing. Dr. Janet Sumida, Hawaii representative to the CAPT Project, has collected a list of evaluative criteria that can be used to evaluate applied performance tests. These criteria are available upon request from the Clearinghouse and I have brought you copies for those of you interested in reviewing or revising applied performance instruments.

The CAPT Project is continuing to be responsive to the needs of the CAPT consumer audience. During the second year of CAPT operations, evaluative criteria will be formalized into an evaluation model for judging an applied performance test. Producing means of evaluating applied performance tests is not the only effort by CAPT to advance the state of the art in applied performance testing. In addition to dissemination activities such as the CAPT Newsletter's reference lists and the Annotated Bibliography, CAPT is developing materials viewed as necessary to the expansion of the field.

One such effort is the development of instructional materials on applied performance testing. These instructional units are being produced to introduce teachers and administrators to the concepts and applications of applied performance testing for student evaluation in the classroom. An extension of the work on instructional materials will develop exportable training packages that will provide more information on the uses of applied performance testing. These packages will be pilot tested in the four member states and will be generally available after revision work has been completed.

Another CAPT product will be the Handbook on Applied Performance Testing. This handbook will include a compilation of monographs written

by persons working in the field of applied performance testing. The content of this document will be more technical than the training package, yet suitable for independent study or as a resource text.

Clearinghouse representatives actively participate in conferences dealing with applied performance testing. Visitations to major centers of activity in the field are providing CAPT with new information and are establishing a mechanism for the continual sharing of new developments.

Although resources for undertaking the development of new applied performance tests are scarce, CAPT is committed to filling gaps where no instruments are currently available. To the extent possible, CAPT will begin to develop applied performance tests in the aforementioned public school subject matter areas.

CAPT staff has continued to work with agencies such as the U. S. Office of Education (USOE) and Defense Activities for Non-Traditional Educational Support (DANTES) to further the state of the art in performance testing. Tests of functional adult literacy have been collected and evaluated for USOE. These test evaluations will be used for decision making in Right to Read and other literacy programs. Tests of occupational and vocational competence have been identified and described together with descriptions of testing programs available to achieve competence in such areas, in a report to DANTES. These two adjunct projects to CAPT are an indication of the commitment the Clearinghouse has made to furthering the practice of applied performance testing.

Other Centers of Activity

Besides CAPT, there are a number of agencies working to expand current knowledge in the field of applied performance testing. The Human Resources Research Organization (HumRRO) has been designing performance tests—mainly for the military—for 22 years. Through this involvement in performance testing, HumRRO has produced valuable procedural papers on developing performance tests and on conducting task analyses. The Human Resources Research Organization has seven divisions located throughout the country. Personnel including: Saul Lavisky at HumRRO's main office in Alexandria, Virginia; Thomas Sticht at the Monterey, California Division; William Osborne at the Fort Knox, Kentucky Division, have been involved with and supportive of the CAPT Project.

The Center for Educational Development (CED) performs various support functions for the University of Illinois Medical Center, including designing assessment procedures for the allied health professions. In this area of support, CED is currently concerned with:

1. Working with School of Medicine faculty to design tests that will assess the accuracy of clinical judgments, including written simulations, mannequin simulations and checklists for the performance of specific tasks.

2. Working with specialty boards to design tests to certify competence in medical specialties.
3. Research and development efforts in the area of self-assessment techniques for physicians in practice.

Drs. Christine McGuire and Hulda Grobman have given valuable assistance to the CAPT Project, especially in planning the National Conference on the Future of Applied Performance Testing. They have also added to the growth of the field in simulation measurement through instruments produced and papers published at the Center.

The Cooperative Assessment of Experiential Learning (CAEL) located at Educational Testing Service in Princeton, New Jersey conducts activities that fall into three major phases. The first phase involves research and development efforts to produce techniques or processes for assessing experiential learning. The second phase concerns the validation of products developed in the first phase. Various member institutions have volunteered to field test products of the development phase. The third phase is the dissemination and application of validated products. This phase will include the training of individuals in the use of the developed and validated procedures. Tangible output to date includes three major publications:

1. "CAEL Resource Book" includes references to persons/projects working in the field of experiential learning, and a bibliography of references on experiential learning.
2. "Current Practices in the Assessment of Experiential Learning," a working paper on assessment techniques currently in use in various institutions of higher education.
3. "A Compendium of Assessment Techniques," another working paper. Dr. John R. Valley directs this project and has been the main CAPT contact. Information sharing with this organization has been most beneficial to the CAPT consumer audience.

The National Occupational Competency Institute (NOCTI) also located at Educational Testing Service in Princeton, New Jersey was originally known as the National Occupational Competency Project. The project had three main objectives:

1. To establish a consortium of states needing occupational competency tests designed to certify teachers of that particular occupation.
2. To determine the state-of-the-art in occupational competency testing--it was found that only a paucity of tests existed and

in many cases state departments of education were duplicating other efforts in test development.

3. To develop needed tests and associated testing materials.

Since becoming an institute, NOCTI has explored the feasibility of administering national occupational competency tests; 1200 examinations are now administered yearly to future teachers in each of 24 occupational areas. These exams are used for three main purposes:

1. To obtain data for selection in teacher education programs.
2. To provide proficiency credits by examination.
3. To certify competency in an occupation.

Dr. Adolf Panitz, Director of the original project as well as the present institute, has assisted CAPT through personal dialogue and directing CAPT representatives to other major centers of activity and documents in the field.

The Combat Arms Training Board (CATB) in Fort Benning, Georgia is responsible for developing instructional systems and complementary materials (including performance tests) for all military occupation specialties. Within this framework, CATB is developing an Instructional Systems Development (ISD) Model and several manuals (presently under development) that will be used in training. In addition, CATB is developing many performance-based tests in connection with performance-based instruction programs. Although some of these materials are available at CATB, most are located at training sites. The goal of CATB is to provide in various-eventually all-Army occupations.

The objectives of the Adult Performance Level (APL) Project located at the University of Texas at Austin, under the direction of Dr. Norvelle Northcutt, are to (1) develop a meaningful, accountable description of adult functional literacy for the United States, and (2) create techniques for assessing functional literacy which are useful in national and state policy planning.

In three years of research, the APL Project has developed a taxonomy which conceptualizes adult functional literacy as the application of a set of skills (communication, computation, problem solving, and interpersonal relations) to a set of "general knowledge areas" which are particularly important to success in American society as operationally defined by income, education and occupation. The general knowledge areas are consumer economics, occupationally related knowledge, health, community resources and government and law.

Adult functional literacy is described in terms of "objectives" which relate to these skills and general knowledge areas. Adult functional literacy is seen by APL as mastery of these objectives to maximize the

likelihood of "success" in terms of being better educated, making more money, and holding better jobs. The more objectives an adult masters, the higher his/her level of literacy.

The APL Project has developed an assessment technique involving random samples of adults throughout the country who belong to one of several levels of literacy. These data, in combination with the APL operational definition of "success," provide a well-defined estimate of the total number of adults in the country who belong to each level of literacy.

The Ohio State University Center for Vocational Education houses the Task Inventory Exchange (TIE) under the direction of Robert Taylor. The Task Inventory Exchange conducts task inventories or analyses; procedures that delineate all activities performed by workers on a particular job. Task analyses are of major utility to curriculum developers and performance test developers. These task analyses are used in identifying content for instruction or for measurement devices for applied performance tests.

In addition to individual projects and agencies such as those listed above, many public school education units from classrooms to state departments of education are beginning work in the field of applied performance testing. Movements toward competency-based measurement in which applied performance testing is most useful are observed at state levels, particularly in New York, Oregon, and California. Many districts in these and other states are beginning to stress real life outcomes of classroom learning. These local efforts will turn to agencies mentioned above for technical assistance in planning and implementing applied performance assessment. Education journals are not seen presently as a source of current information on the theoretical and practical implications of this measurement technique.

Other Sources

Although no single journal can be identified as a source of information on applied performance testing, occasionally articles appear on this measurement technique. The following are journals that print papers related to applied performance testing:

Agricultural Education Magazine
Child Development
Educational and Psychological Measurement
Educational Leadership
Educational Technology
Journal of Educational Measurement
Journal of Experiential Education
Journal of Industrial Teacher Education
Journal of Teacher Education
Mathematics Teacher

Perceptual and Motor Skills
Psychological Reports
Reading Research Quarterly
School Review
Teacher Educator
Training

Many additional sources of information on applied performance testing have been mentioned earlier in the procedures section. Certainly, ERIC and similar computer-based information retrieval systems are valuable information bases for general inquiries. (Access is limited, however, by the inadequacy of the descriptors used.) CAPT products, available upon request, are most directly relevant to the field of applied performance testing, as are documents available from major centers of activity mentioned above. Occasionally, chapters in measurement texts deal with performance measurement or product evaluation. These overviews are usually adequate as introductory materials.

DISCUSSION

Interest in, and use of, applied performance testing as a measurement technique has expanded over the past few years. Increased emphasis in public school education on "real life" application of classroom learning has been the main factor in the increased awareness of applied performance testing. This emphasis becomes clear as districts and states move toward competency-based instruction and measurement.

A number of states and districts are currently moving to competency-based measurement for promotion or graduation requirements. Oregon law now mandates the assessment of minimum competencies in a variety of subject matter areas as a prerequisite to high school graduation. The State of Washington has initiated a program allowing a student "early exit" from high school after certification that he or she has satisfactorily demonstrated competence in a number of required subject matter areas. Hawaii has implemented a statewide assessment program that employs competency-based measurement devices.

There are many reasons why school people are adopting competency-based educational programs as a substitute for (but oftentimes in addition to) the traditional methods of promotion—that is, completion of course-work, or school attendance. For example, the increased emphasis on the specification of educational objectives in instructional programs has encouraged adoption of competency-based programs. Behavioral or performance objectives include a delineation of the specific knowledge or skill to be demonstrated, the manner in which the task will be undertaken by the student and the precise level of performance which will be considered satisfactory in completing the objective. Detailed specification of educational objectives allows increased accuracy in the measurement of educational goals.

The interest in using competency-based instruments greatly preceded theoretical refinements and development of these measures in education. Development began at the classroom level, and gradually proceeded to the state level in education. The military and private industry (to a lesser degree) have prepared themselves via a slower evolutionary process.

The rationale for the military and private industry's interest, acceptance and use of applied performance testing relates to another major reason for the educational community's growing interest and use of this technique. As had been stated earlier, applied performance testing measures performance of some task significant to life outside the instructional setting. This technique requires performance in a simulated or actual setting. Therefore, those agencies whose instruction enables a student to perform an important life task view applied performance testing as a measurement technique consistent with outcomes of instruction. The military and business communities train personnel to perform a specific job; and measurement is tied to the actual job performance. Education, which has in the past been largely preparatory to generally defined life goals outside the school, is now committing itself to the acquisition of life skills. Because of the new commitment to teach skills which are viewed as valuable for adults in a complex society, education has found applied performance testing a valid measurement technique.

Adoption of this technique within education has, however, varied substantially. Applied performance testing is seen as valuable in those content areas in which the desired product of instruction is performance. Examples of content areas in which applied performance testing is relevant include: vocational/occupational education, physical education, the arts, and foreign languages. It is evident that even within the content areas for which applied performance testing is relevant, the relative emphasis placed on development of standardized measures has differed widely.

Two additional factors relate to the development of formalized applied performance tests. One factor is the degree to which a move toward standardization is seen as important or feasible. In vocational and physical education, the emphasis on standardization has resulted in many formalized applied performance tests. In the arts and foreign language education, less emphasis has been placed on formalizing applied performance tests. This is most likely due to the feasibility of standardizing aesthetic performances in the arts, and to interest in or need for such tests in the foreign languages. At the present time it is difficult to justify the formalization of applied performance tests in all content areas.

Another factor yet to be explored regarding development of applied performance tests is grade level. Because of the preparatory nature of elementary education, less subject matter within that level is relevant to applied performance testing. Surely reading and math skills are not yet developed to the point where application of life skills is necessary for student evaluation. The scope of most subject matter areas is

reduced to lower levels of Bloom's and Krathwohl's taxonomies. Therefore, applied performance testing is less applicable in lower grade levels where performances are not part of the learning outcomes. However, this is not to say applied performance testing is never applicable at the elementary level. Tying one's shoe or buttoning an overcoat are examples of tasks best measured in an applied performance setting.

The rationale behind development of applied performance testing is multi-faceted indeed. We have examined three main factors that contribute to the use of applied performance tests: (1) relevance of the technique to measure expected outcomes in the content area, (2) desire for or feasibility of standardization of informal performance measures currently in use, and (3) grade level or taxonomic complexity of acquired skills.

Another very important consideration is the treatment of applied performance testing as but one small part of the entire testing spectrum available to those involved in instruction and evaluation. It is not a panacea for testing problems in training and education, it is not a replacement for the many highly developed technical tools we are now using; and it is certainly not a synonym for a new curriculum movement in our schools. It is a way to collect information about task performance that is useful in certain training and education settings and should be treated as simply that.

Factors such as cost, administration and scoring time, the availability of applied performance tests and compatibility of applied performance testing with the present system for student evaluation must be considered in planning for the use of applied performance tests. Although these factors tend to limit the practicability of applied performance testing, under certain conditions, they do not negate its utility. Current research and development should help to offset negative aspects of such factors. Group administered applied performance tests and synthetic performance tests and simulations can open the way for feasible applied performance testing without compromising the utility of this technique. As public support for this type of measurement grows, CAPT and many other agencies will expand the state-of-the-art in applied performance testing and thereby close the gap between the demand for and availability of applied performance tests.